Tushar Allotments Collaboration
Pine Creek Water Developments
By: Douglas Sorensen, Rangeland Management Specialist
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The condition of the developed water systems on the allotment varies widely. Two new troughs were installed last year on the Mud Spring pipeline system while the Dipping Vat and Dead Cow Spring developments are totally non-functional. There was a critical need for all of these developments when they were first installed. And they were installed at a large expense of money and hard labor. In approximately 1976 all structural range improvements were assigned to those permittees using the various developments.

Most water developments on the District are in need of work ranging from major repair to total rebuilding. At this point we should be looking at a new construction standard that will insure long term durability for newly constructed developments. Some of the problems with the old developments are failure to adequately protect the spring source; poor placement or not using or maintaining an adequate float valve; inadequate winterizing (pipeline draining) and subsequent freezing; inadequate or plugged overflow piping and unstable or poorly compacted trough site and subsequent trough settling.

Spring Source Protection

Each spring source needs improved protection. The new standard should be an adequately sized exclosure that will effectively prevent livestock from entering the water source. As a minimum, the exclosure should be at least 40 ft X 40 ft. The actual spring site will help determine the minimum exclosure size. The Exclosure should take in the entire source area. In some cases, such as Dipping Vat Spring, the excluded area may be one acre or more in size.

The exclosure also must be built with extremely durable materials capable of withstanding the extra pressure exerted by livestock at these types of sites. It is recommended the exclosures be constructed of at least a post-pole fence with 3 poles high and posts no more than 10 feet apart. Optionally, use a log-worm fence which is at least 48” to 60” high. Avoid using barb-wire or net-wire since this type fence will not stand up to the increased pressure from livestock.

The spring source itself should be developed or re-built with new materials that are dependable and will withstand the elements. The collection pipe should be embedded in clean gravel with the perforated pipe covered in a geo-fabric or filter cloth that will allow water to easily pass through but will filter out silts and clays. The collection box should be galvanized steel or, preferably, high-density polyethylene (HDPE). The collection box should have a shut-off valve and air

vent installed at the pipeline outlet for winterizing. To conserve water at the spring source, the trough must have a durable float valve.

The pipeline from the collection box to the trough must be at least 1 ¼" polyethylene, and preferred 160 psi. The pipe should be buried at least 12" deep with adequate markers to help identify the line location. Install a marker post at every road and trail crossing.

Today there are several new products available that may improve how water troughs are installed and will insure a longer period of use. It seems the key to long-term usability is first insuring the trough is placed on well drained, well-armored material such as coarse (3/4" minus) gravel that is contained in a stable matrix such as GeoWeb®, GeoBlock® or EnviroGrid®, or use pre-cast concrete bases such as "hog-slats" used at the Circle 4 hog farm. The addition of a stable base like the hog-slats or Geo-grid will adequately armor the site and prevent the chronic mud hole and pedestaling problem. It may even be beneficial to install a 4" perforated pipe under the geo-grid to help drain the trough site and further reduce wet soil conditions.

The following table lists the most of the water developments on the Pine Creek allotment.

INFRA Number	Name	Type	Pasture Location	Priority
033402	BELL SPRING TROUGH	WATER_SYSTEM	Pine Creek pasture	low
03990484	PINE CREEK CHAIN & SEED	WATER_SYSTEM		
033425	GRASSY SPRING	WATER_SYSTEM	Wildcat	High #2
033438	MUD SPRINGS TROUGH	WATER_SYSTEM	Pine Creek pasture	low
033545D	N. SPRING PIPELINE EXT.	WATER_SYSTEM	Sulphurbeds pasture	low
034590A	RAYS SPRING PIPELINE	WATER_SYSTEM	Pine Creek Pasture	Moderate
033454	SOUTH LINE TROUGH	WATER_SYSTEM	Lt. North Creek pasture	Low
033545E	NORTH SPRING WS	WATER_SYSTEM	Sulphurbeds pasture	Low
033416	DEAD COW SPRING TROUGH	WATER_SYSTEM	Lt. North Creek pasture	High #3
033439	MUD SP WATER LINE TROUGH	WATER_SYSTEM	Pine Creek pasture	Low
033439A	MUD SP WATER LINE TROUGH	WATER_SYSTEM	Pine Creek pasture	low
033443	OAK HILLSIDE SP TROUGH	WATER_SYSTEM	Wildcat to Pine Creek	Moderate

033452A	SOAP SPRING POND	WATER_SYSTEM	Pine Creek pasture	Low
033444A	PETERSON SPRING TROUGH	WATER_SYSTEM	Lt. North Creek pasture	Low
033545A	NORTH SPRING W/D	WATER_SYSTEM	Pine Creek pasture	low
033531	COVE CREEK POND	WATER_SYSTEM	Cove Creek pasture	Low
033420	DRY HOLLOW TROUGH	WATER_SYSTEM	Pine Creek pasture	Low
033451	SALT HOLLOW SP TROUGH	WATER_SYSTEM	Pine Creek pasture	Low
033452B	SOAP SPRING TROUGH	WATER_SYSTEM	Pine Creek pasture	Low
033417A	DIP VAT SPRING TROUGH	WATER_SYSTEM	Cove Creek pasture	High #1
033417B	DIP VAT SPRING POND	WATER_SYSTEM	Cove Creek pasture	High #1
033434	LOWER SALT HOLLOW TROUGH	WATER_SYSTEM	Pine Creek pasture	low
033436	MORMON RESERVOIR TROUGH	WATER_SYSTEM	Sulphurbeds pasture	moderate
033547	BRUSH HOLLOW POND	WATER_SYSTEM	Pine Creek pasture	Low
034590B	RAYS SPRING TROUGH	WATER_SYSTEM	Pine Creek pasture	Low
033438A	MUD SP WATERLINE TROUGH	WATER_SYSTEM	Pine Creek pasture	Low
033444	PETERSON SPRING TROUGH	WATER_SYSTEM	Lt. North Creek	Low
033546	WITTWER HILL POND	WATER_SYSTEM	Pine Creek pasture	Moderate
033545C	NORTH SPRING TROUGH	WATER_SYSTEM	Pine Creek pasture	High
033545B	NO SPRING WS TR 3 POND	WATER_SYSTEM	Pine Creek pasture	high
034590C	RAYS SPRING DEVEL	WATER_SYSTEM	Pine Creek pasture	low
033421	DRY HOLLOW SPRING TROUGH	WATER_SYSTEM	Pine Creek pasture	low

<u>Cove Creek pasture</u>

Dipping Vat Spring.
With the fencing out of the private property at Cove Creek, it is now very important that Dipping Vat spring be developed to provide livestock watering. This site has been visited by most members of the collaboration group and it seems accepted to construct a rather large exclosure fence around the spring, old sheep trough and pond that will effectively contain the existing wetland. The exclosure may exceed 1 acre in size but would provide protection to the spring and associated riparian area. As above, the exclosure should be built with cedar

posts and 3 poles high to effectively exclude livestock. The trough should be placed below and west of the spring area. There is a relatively flat area that would be an ideal location for the trough.

Cove Creek Pond.
This pond was cleaned in the spring of 2008. During the cleaning the diversion ditch from the drainage was strengthened to prevent over-topping and insure adequate water for the pond. This diversion also was installed to act as the over-flow devise for the pond.

Sulphurbeds Pasture

Most of the available water in this pasture is provided by the North Spring and South spring pipelines. These waters are controlled by the owners of the Geothermal power plant and livestock watering is a junior water right.

North Spring pipeline.
The North Spring pipeline tees off from the main line and runs through two chained areas and ends at the large pond in the main chaining area, a distance of almost 2 miles. The first trough site is at the eastern edge of the small chained area. This trough was re-set several years ago but needs improved float valve, drainage and adequate shut-off valve. At the terminus of the line in the large chained area a trough was installed with a separate water control devise, then a Powder River® trough and the overflow then going into an earthen pond. Approximately 15 years ago an additional pipeline and trough was installed north and west of the pond but has never operated.

Both troughs need to be re-set on a better base, such as hog-slats or geo-Cell material and re-plumbed with adequate float valves and adequate overflow protection. The pond also needs to be cleaned and the dike rebuilt with at least 2 feet of free board and an adequate spillway.

As we discussed this fall, the lower pond and trough site would be a good candidate for a rather large gathering corral with one-way gates and possibly a loading chute or trailer loading area. If cattle are in the pasture they are at this water. A good corral would certainly aid in accomplishing a complete gather and capturing cattle in the fall.

South Spring.
This spring, like North Spring, was developed for the old Sulphurdale site and now the geothermal power plant. The spring actually originates within the Little North Creek pasture and then enters the Sulphurbeds pasture. The Mormon trough is fed by this line. This trough is an old sheep trough approximately 60 feet long and could be replaced by a newer trough. Work on this improvement is secondary to repairs needed on the North Spring system.

Little North Creek Pasture

South Spring Trough.
This trough is fed by the South Spring pipeline and is at a rather high location which helps draw cattle off riparian areas into upland areas. Some maintenance could be performed but it seems to be working satisfactorily.

Dead Cow Spring.
This water is an old 40 to 60 ft long sheep trough that has not run water for over 15 years. In 1995 a rather small (±1 acre) exclosure was constructed around the spring site and has effectively kept livestock away from the source. The trough is still in fair condition and we should attempt to open up the pipeline from the spring source. Initially we recommend using a long sewer snake to remove silts from the line. Another option is to use a small high-pressure water line to flush out any silt clogs.

Peterson Spring
Peterson Spring occurs just above the forest boundary and feeds a pipeline that terminates on BLM public lands to the west. The one trough on the forest provides water to a relatively isolated seeding. The system is still serviceable and needs little work.

Pine Creek Pasture

Bell Spring
Bell Spring occurs just above the Forest boundary and feeds a trough and short pipeline. The one trough on the forest provides water to a relatively isolated seeding. The system is still serviceable and needs little work.

Ray Spring and trough.
Ray Spring occurs south of Bell Spring and, with Bell Spring, provides livestock and wildlife water for a relatively small chaining-seeding area adjacent to the forest boundary. The pipeline actually leaves the forest and is under a special use permit to Ray, Robert and Joe Yardley. This improvement is functional but the trough on the forest must be re-set using the new standards and an adequate float valve installed. The trough is about ¼ mi from the spring.

Mud Spring, pipeline and troughs
Mud Spring was initially developed by Utah Dept. of Transportation (UDOT) to provide water to a now-closed, rest area on I-15. Over time UDOT developed another spring source closer to the rest area and the water line is now used exclusively for livestock and wildlife on the Forest and Public lands east of I-15. In the fall of 2006 the two troughs on the forest were replaced with new 8 ft dia. Galvanized steel troughs, and new control valves were installed in the main line. Adequate water flow from this system is still a problem. The District has, on several occasions, used the District fire engine to blow out the line from the

upper trough to the spring collection box. This segment seems to be working. However, no water flows below this upper trough. At this point, it appears there may be a blockage in the line between the two troughs on the forest. The next course of action should be to locate the line midway between the two troughs, preferably on a high point, and attempt to blow out the obstruction.

Dry Hollow Trough
This spring occurs just above the Forest boundary and feeds a trough and short pipeline. The one trough on the forest provides water to a relatively isolated seeding. The system is still serviceable and needs little work.

Salt Hollow Spring, trough
This spring occurs just above the Forest boundary and feeds a trough and short pipeline. The one trough on the forest provides water to a relatively isolated seeding. The system is still serviceable and needs little work.

Soap Spring, trough
This spring occurs just above the Forest boundary and feeds a trough and short pipeline. The one trough on the forest provides water to a relatively isolated seeding. The system is still serviceable and needs little work.

<u>Wildcat Pasture</u>

Grassy Spring.
This spring and trough is now totally non-functional for livestock watering. The spring is located in a narrow portion of the canyon and there is little room for the road and development. However, at a minimum, the spring source must be fenced off and protected from any further livestock damage. Assuming the water system will be re-built; the spring should be fenced well above the actual spring site and fenced along the road. In fact, the road may need to be widened to accommodate the work. The collection box will need to be replaced and a new pipeline and trough installed. The new trough location may need to be moved downstream from the existing location.

Oak Hillside Spring, troughs, pipeline.
This spring actually originates in the Wildcat pasture and the water is piped first to a small trough in Wildcat and then on down to the Pine Creek pasture. Originally the water serviced a long sheep trough but now only feeds the small trough in the Wildcat pasture. Little maintenance work is needed at the spring, but some work is needed at the first trough to level and the trough and stop pipeline and fitting leaks. A new trough is needed at the end of the line in the Pine creek pasture. Additional work may be needed on the pipeline itself.